

TFM-4550

E Model



FM/AM 2-BAND RADIO

SPECIFICATIONS

Frequency Range:	FM: 87.5 — 108 MHz AM: 530 — 1,605 kHz
Antennas:	FM: Telescopic antenna, Earphone cord antenna AM: Built-in ferrite rod antenna
Speaker:	Approx. 5.7 cm (2¼ inches)
Power Output:	220 mW (with 10% harmonic distortion)
Output:	Earphone jack (minijack)
Power Requirements:	3 V dc, two batteries size AA (IEC Designation R6)
Dimensions:	Approx. 68(w) x 128(h) x 27.5(d) mm 2¾(w) x 5(h) x 1⅛(d) inches incl. projecting parts and controls
Weight:	Approx. 255 g, 9 oz

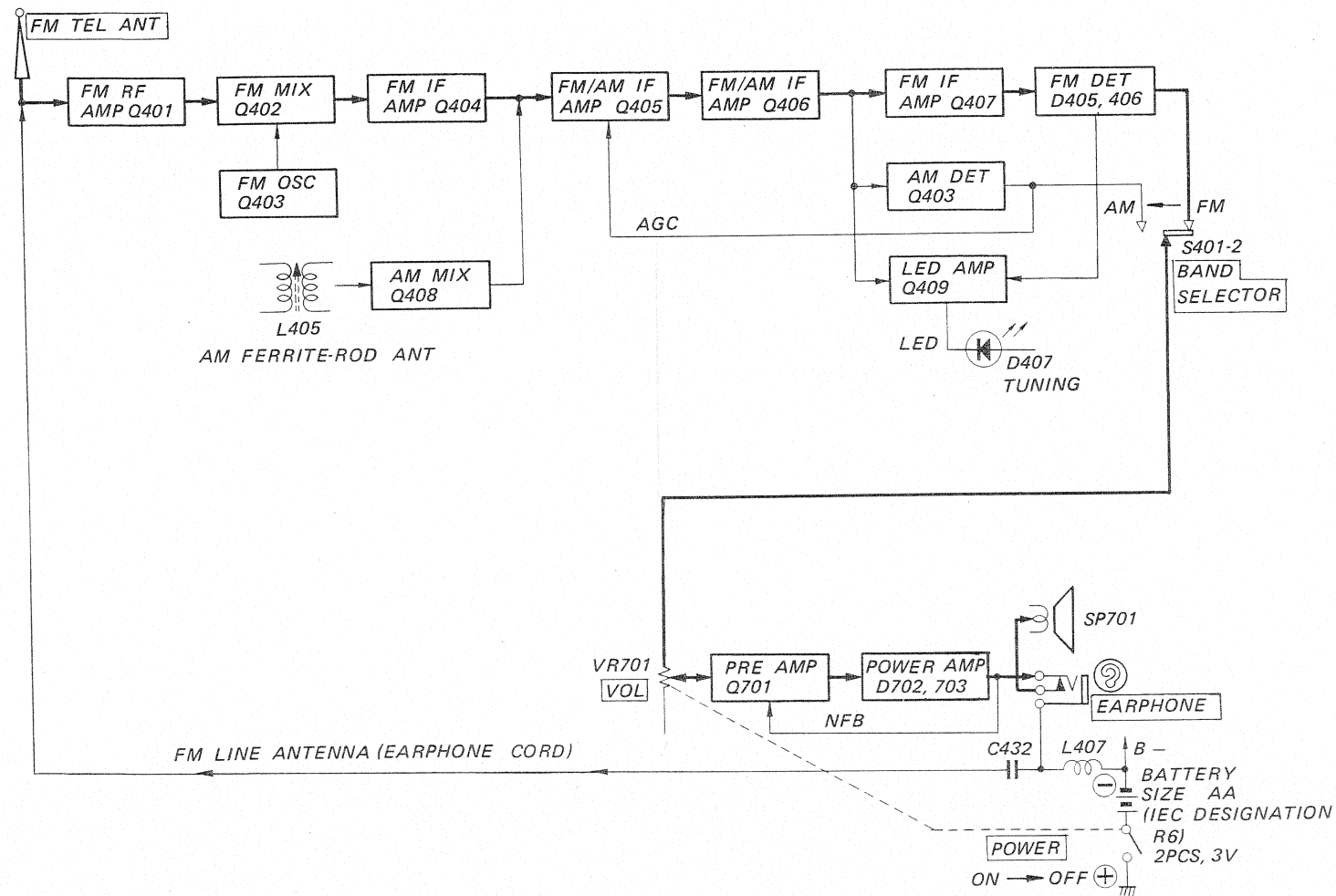
SONY®
SERVICE MANUAL

MEMO

This image shows a single sheet of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

SECTION 1

BLOCK DIAGRAM

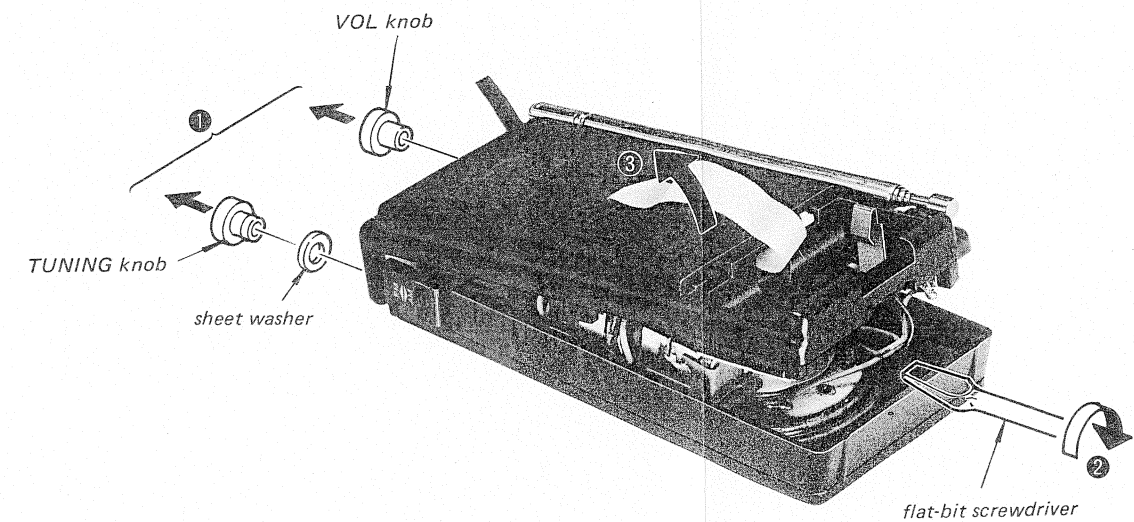


SECTION 2

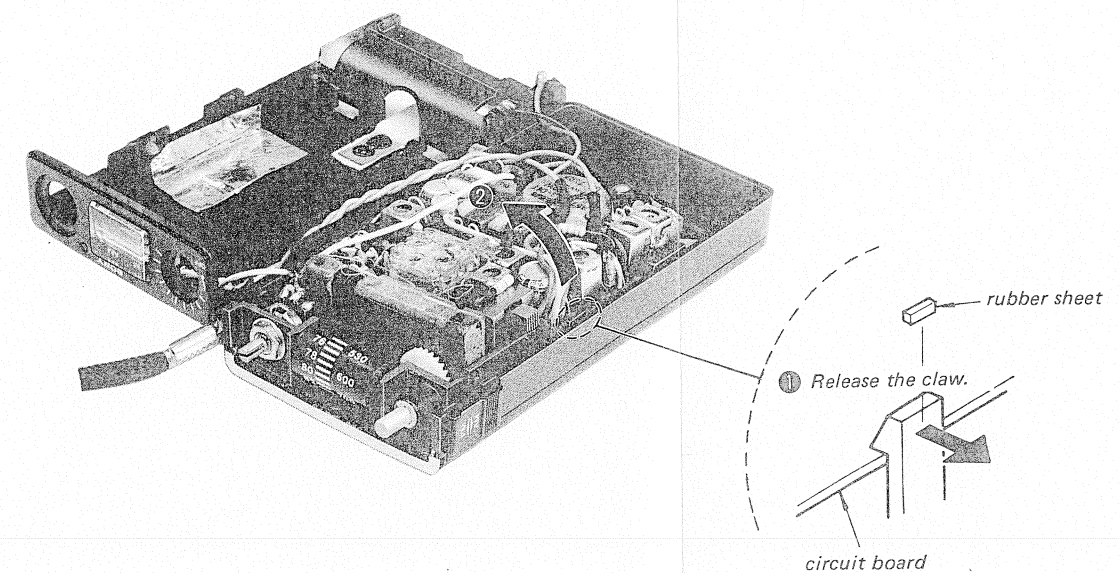
DISASSEMBLY

Remove the parts in the numerical order.

REAR CASE REMOVAL

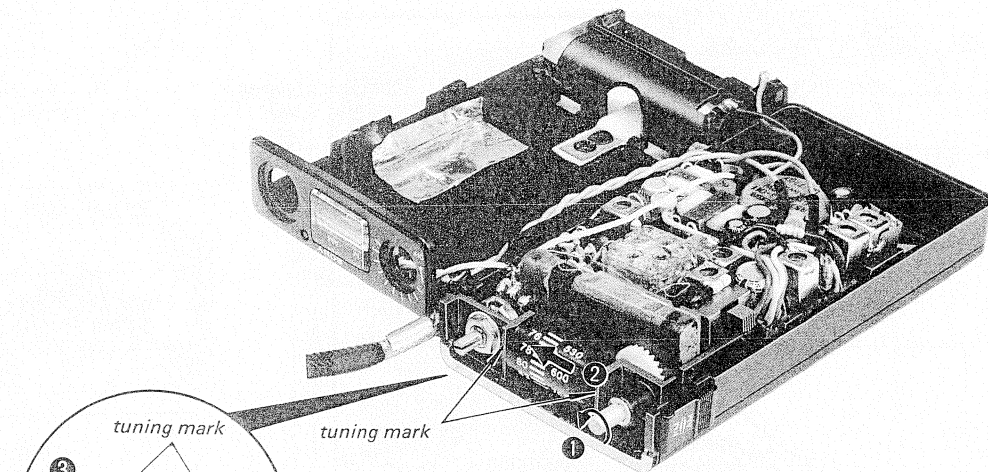


CIRCUIT BOARD REMOVAL



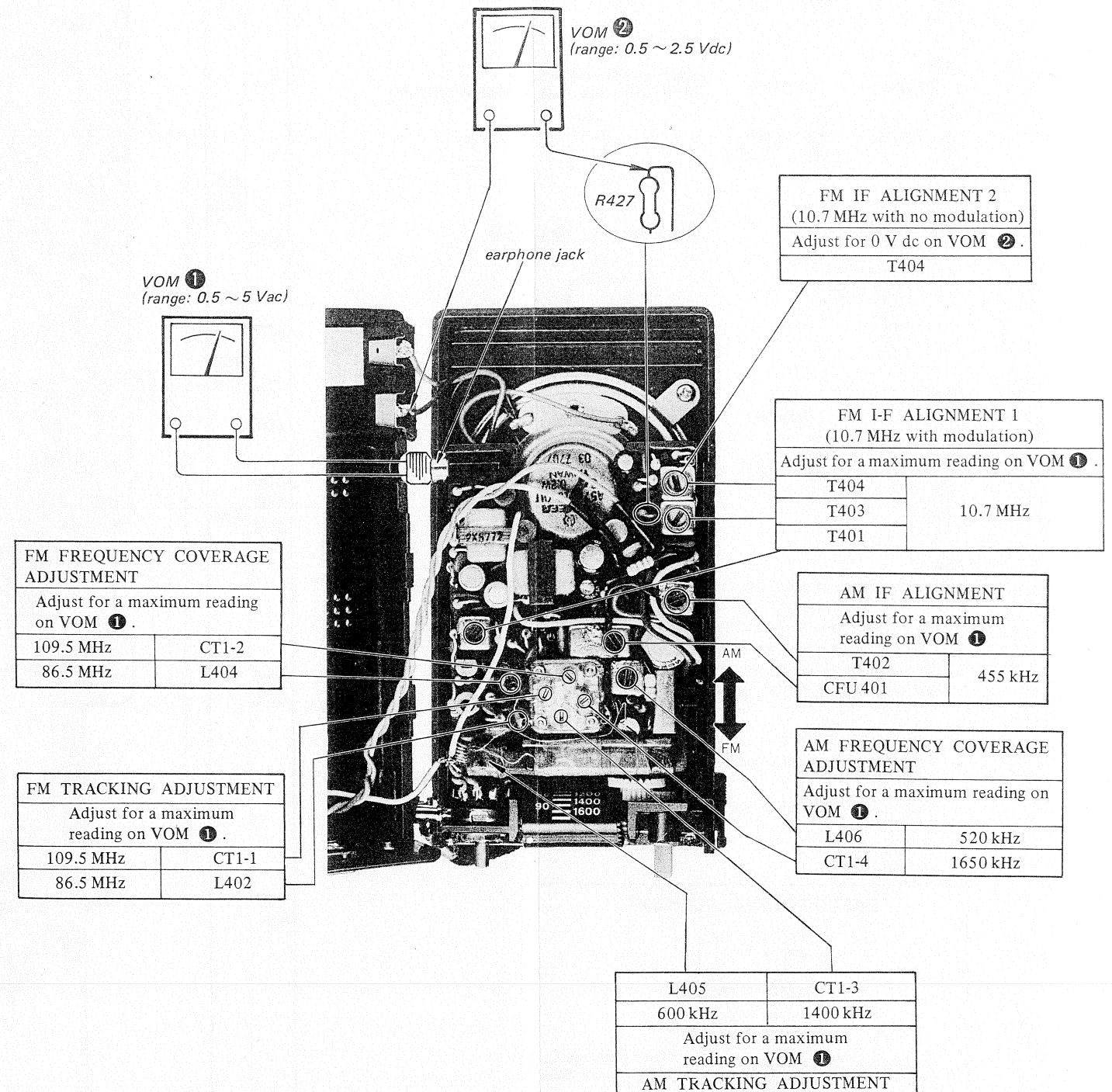
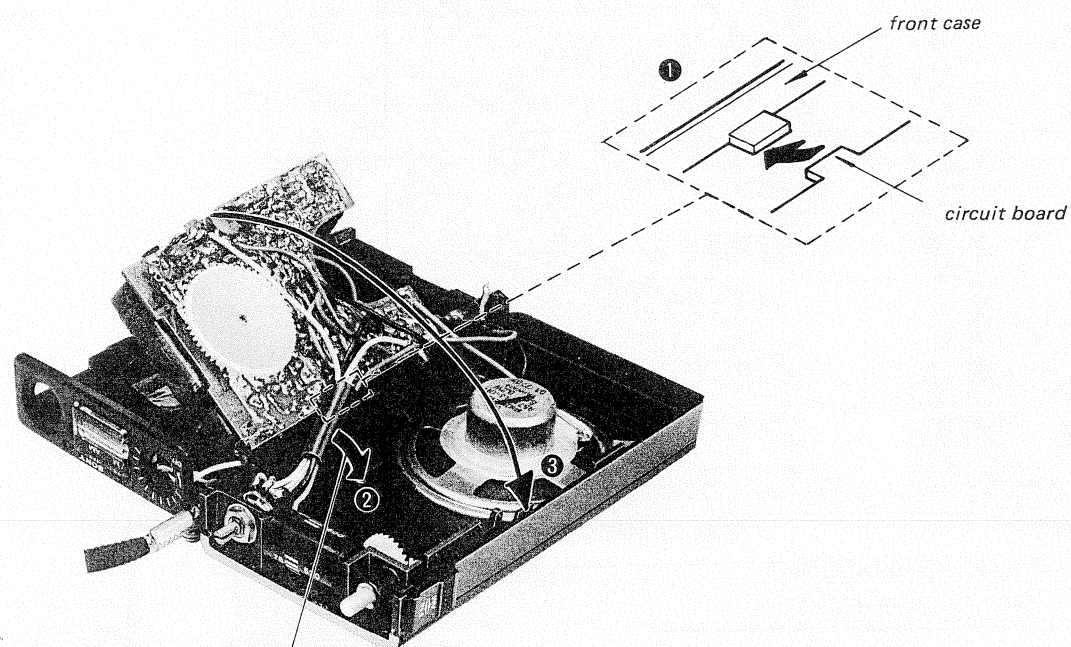
SECTION 3 ELECTRICAL ADJUSTMENTS

DIAL DRUM SETTING



- ① Turn the tuning shaft fully counterclockwise.
- ② Push the dial drum in the arrowed direction.
- ③ Set the dial drum as shown in the inset drawing.

CIRCUIT BOARD INSTALLATION



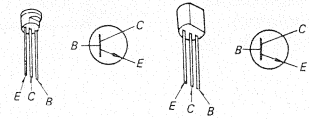
SECTION 4
DIAGRAMS4-1. MOUNTING DIAGRAM
— Conductor Side —

Replacement Semiconductors

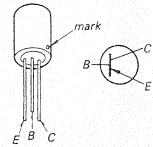
For replacement, use semiconductors except in ().

Q401 ~ 407:
2SC930

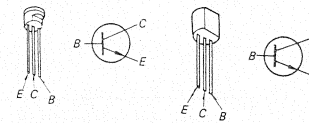
(2SC930)



Q702, 703: 2SB405

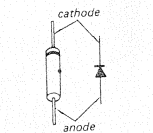
Q408:
2SC930

(2SC929)



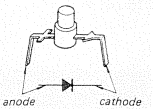
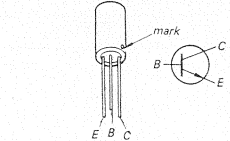
D401: 1S1555 (1S2473)

D402 ~ 406, 409, 410: 1S1555 (1S188FM)

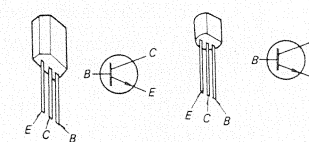


Q409: 2SD187 (2SD30)

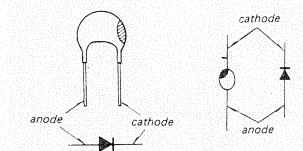
D407: SEL103R (SEL102R)

Q701:
2SC634A

(2SC536)

D408:
VD1222

(VD1212)

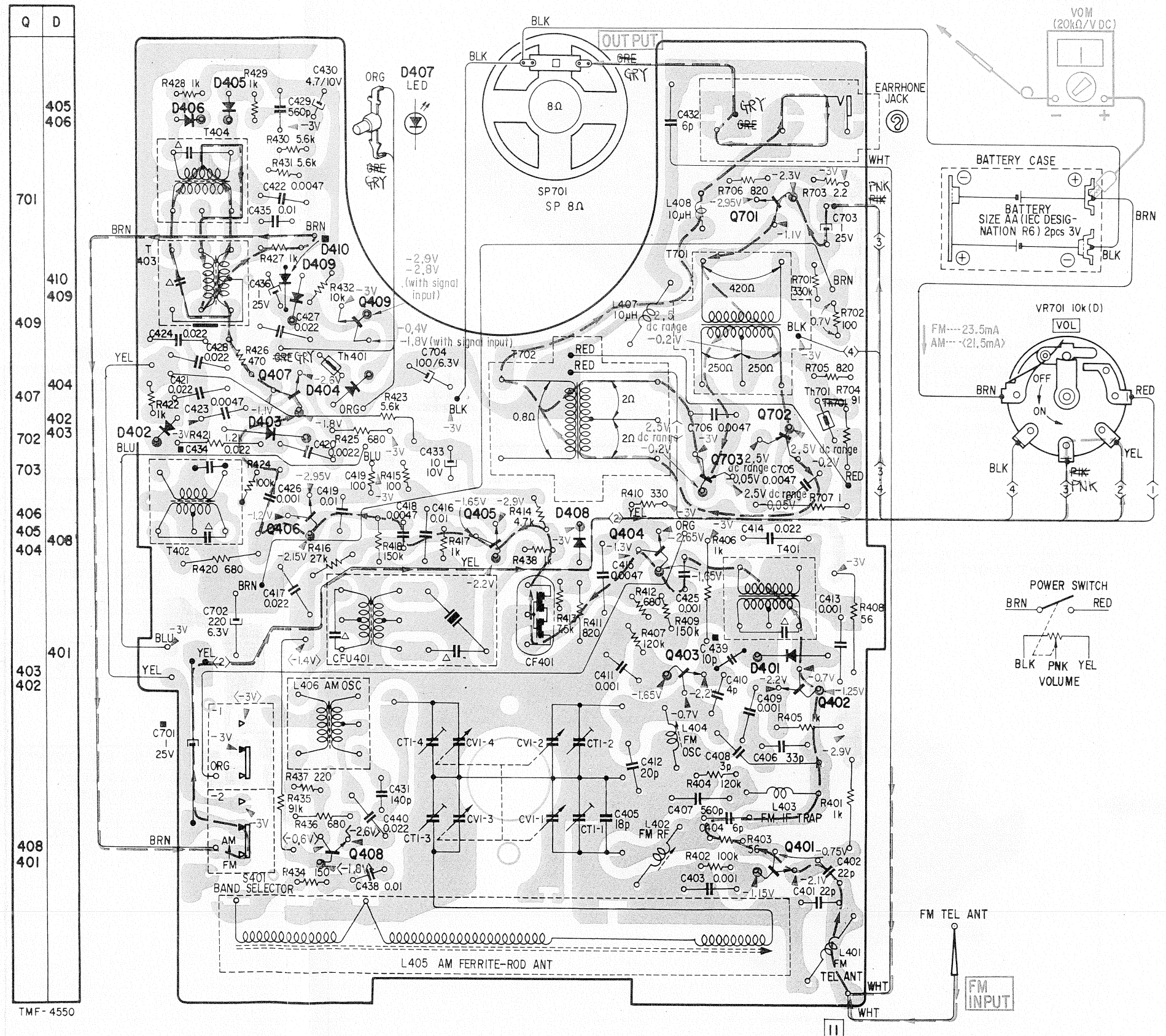
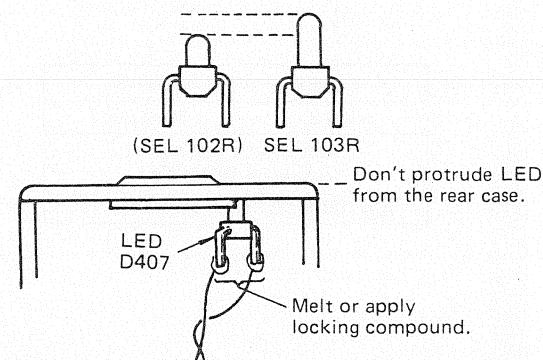


Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : part mounted on the conductor side.
- : indicates side identified with part number.
- DC resistance is measured with transformer connected on the circuit board, and are approximate.

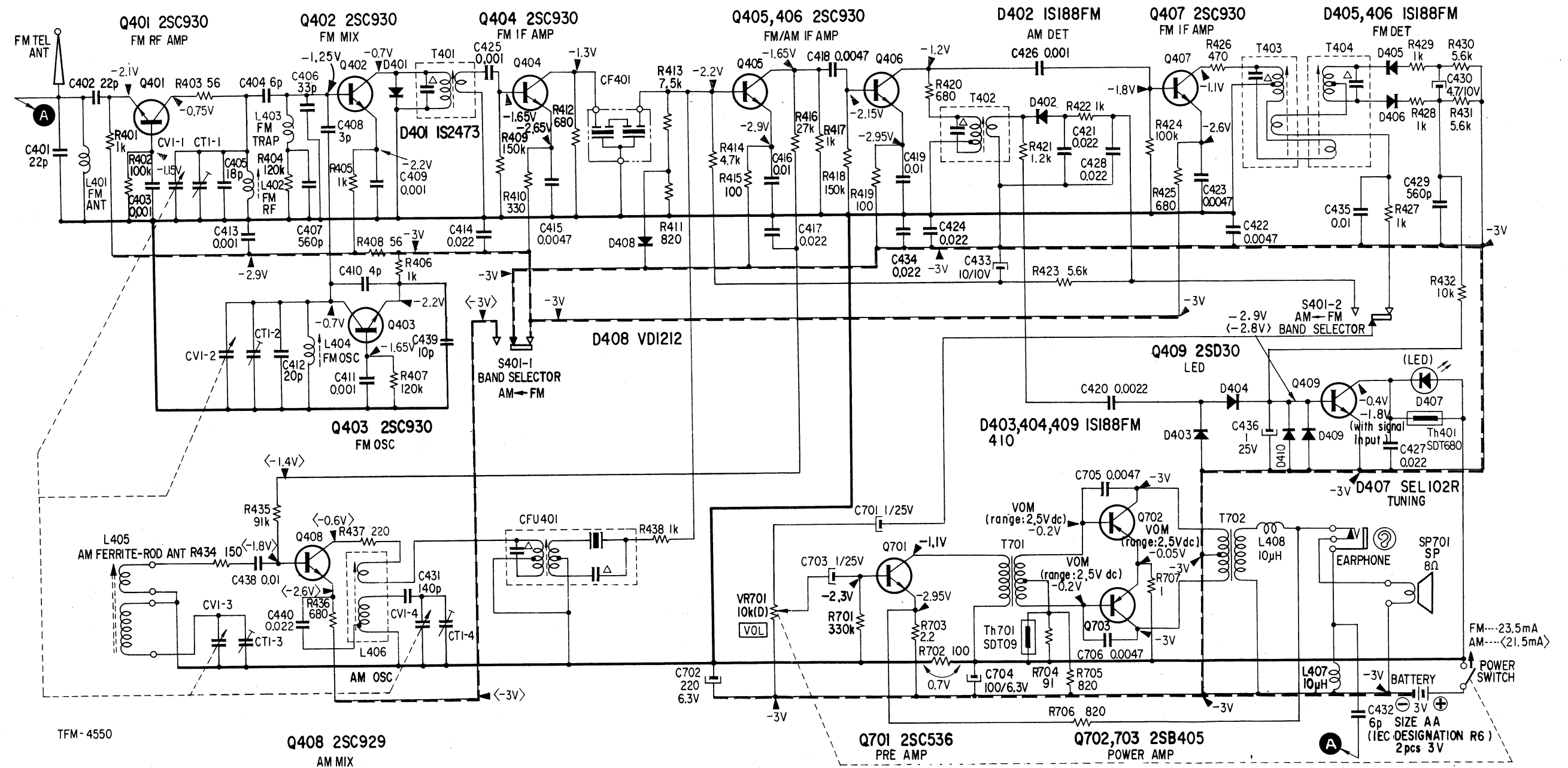
- : signal path
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions with a VOM (20 kΩ/V).
- < >: AM
- no mark: FM

D407 (LED) REPLACEMENT



TMF-4550

4-2. SCHEMATIC DIAGRAM

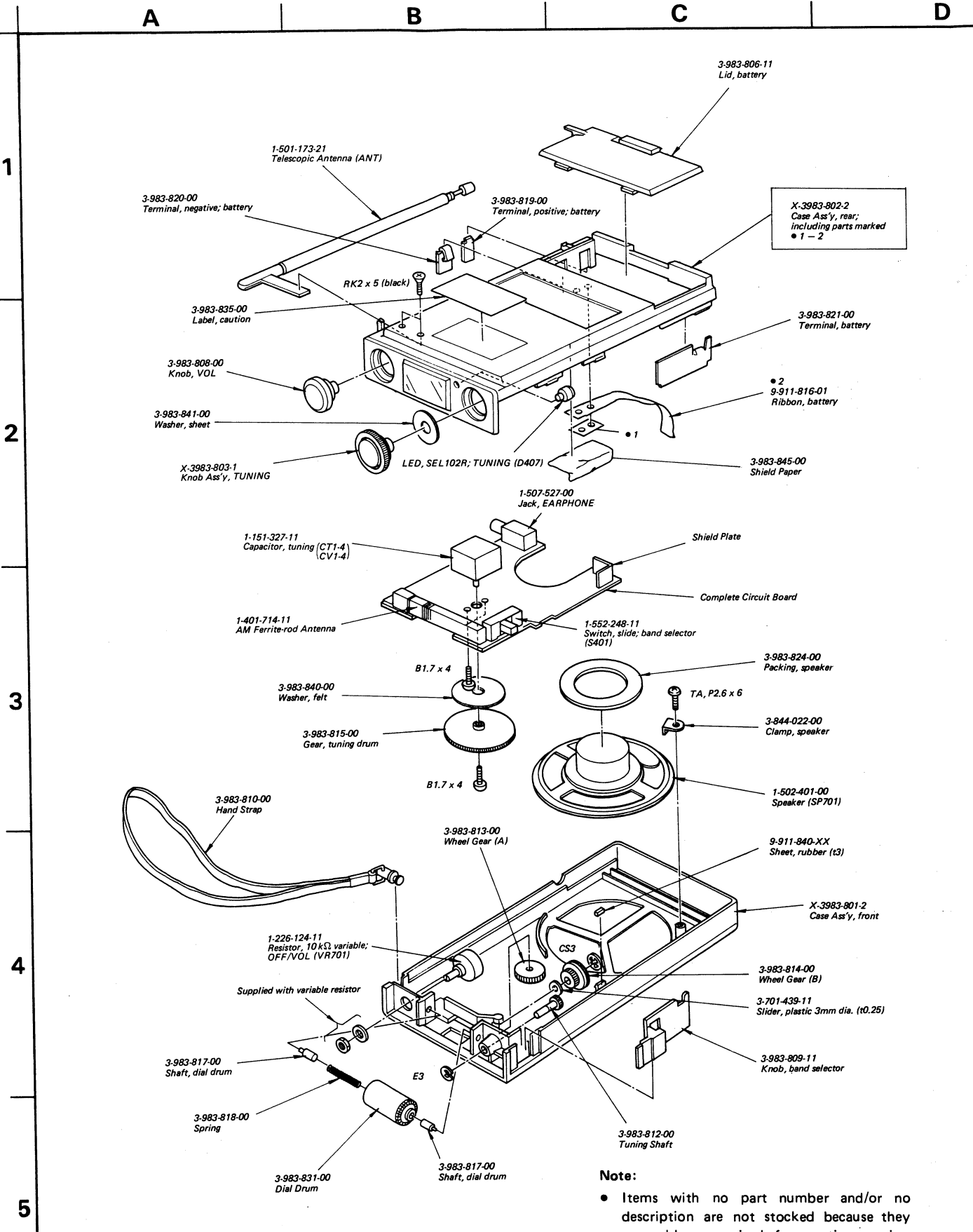


Note:

- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\mu\text{F}$ 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, $\frac{1}{8}\text{W}$ unless otherwise noted. $\text{k}\Omega = 1000\Omega$, $\text{M}\Omega = 1000\text{k}\Omega$
- Δ : internal component.
- $\square$: panel designation.
- : B - bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions with a VOM (20 $\text{k}\Omega/\text{V}$). $<$ $>$: AM no mark: FM
- Voltage variations may be noted due to normal production tolerances.

SECTION 5
EXPLODED VIEWS

SECTION 6
ELECTRICAL PARTS LIST



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head

Ref. No. Part No. Description

SEMICONDUCTORS

Transistors

⇒ Q401-408 2SC930
⇒ Q409 2SD187
⇒ Q701 2SC634A
Q702, 703 2SB405

Diodes

⇒ D401-406 1S1555
⇒ D407 SEL103R
⇒ D408 VD1222
⇒ D409, 410 1S1555

Thermistor

Th401 1-800-070-XX S-47
Th701 1-800-194-00 S-90

COILS

L402 1-405-526-00 FM RF
L404 1-405-526-00 FM OSC
L405 1-401-714-11 AM Ferrite-rod Antenna
L406 1-405-780-11 AM OSC
L407, 408 1-407-157-XX Microinductor, 10μH

TRANSFORMERS

T401 1-403-930-00 FM IFT
T402 1-403-929-00 AM IFT
T403 1-403-932-00 FM IFT
T404 1-403-931-00 FM IFT

T701 1-423-233-11 Driver
T702 1-427-432-11 Output

CF401 1-527-220-XX Ceramic Filter

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50WV or less are not indicated except for electrolytics.
pF = μμF, elect = electrolytic

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No. Part No. Description

C401, 402 1-102-959-11 22p
C403 1-101-455-11 0.001
C404 1-102-808-11 6p
C405 1-102-953-11 18p
C406 1-102-963-11 33p
C407 1-102-115-11 560p
C408 1-102-503-11 3p
C409 1-101-455-11 0.001
C410 1-102-504-11 4p
C411 1-101-455-11 0.001
C412 1-102-801-11 20p
C413 1-101-455-11 0.001
C414 1-101-924-11 0.022
C415 1-161-334-11 0.0047 (boundary layer)
C416 1-161-330-11 0.01 (boundary layer)
C417 1-101-924-11 0.022
C418 1-161-334-11 0.0047 (boundary layer)
C419 1-161-330-11 0.01 (boundary layer)
C420 1-102-100-11 0.0022
C421 1-161-125-11 0.022 (boundary layer)
C422 1-102-102-11 0.0047
C423 1-161-334-11 0.0047 (boundary layer)
C424 1-101-924-11 0.022
C425, 426 1-161-323-11 0.001 (boundary layer)
C427 1-101-924-11 0.022
C428 1-161-125-11 0.022 (boundary layer)
C429 1-102-115-11 560p
C430 1-121-395-11 4.7 25V elect
C431 1-103-705-11 150p polystyrol
C432 1-102-808-11 6p
C433 1-121-651-11 10 16V elect
C434 1-101-924-11 0.022
C435 1-161-330-11 0.01 (boundary layer)
C436 1-127-023-11 1 10V solid aluminum
C438 1-161-330-11 0.01 (boundary layer)
C439 1-102-947-11 10p
C440 1-161-125-11 0.022 (boundary layer)
C701 1-127-023-11 1 10V solid aluminum
C702 1-121-419-11 220 6.3V elect

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
C703	1-127-023-11	1 10V solid aluminum
C704	1-121-413-11	100 6.3V elect
C705	1-161-334-11	0.0047 (boundary layer)
C706	1-102-102-11	0.0047
CT1-4, CV1-4)	1-151-327-11	Tuning

RESISTORS

All resistors are in ohms and of 1/8W carbon unless otherwise noted.

R401	1-246-473-11	1
R402	1-246-521-11	100k
R403	1-246-443-11	56
R404	1-246-523-11	120k
R405, 406	1-246-473-11	1
R407	1-246-523-11	120k
R408	1-246-443-11	56
R409	1-246-525-11	150k
R410	1-246-461-11	330
R411	1-246-471-11	820
R412	1-246-469-11	680
R413	1-246-494-11	7.5k
R414	1-246-489-11	4.7k
R415	1-246-449-11	100
R416	1-246-507-11	27k
R417	1-246-473-11	1k
R418	1-246-525-11	150k
R419	1-246-449-11	100
R420	1-246-469-11	680
R421	1-246-432-11	1.2k
R422	1-246-473-11	1k
R423	1-246-491-11	5.6k
R424	1-246-521-11	100k
R425	1-246-469-11	680
R426	1-246-465-11	470
R427-429	1-246-473-11	1k
R430, 431	1-246-491-11	5.6k
R432	1-246-497-11	10k
R434	1-246-453-11	150
R435	1-246-520-11	91k

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R436	1-246-469-11	680
R437	1-246-457-11	220
R438	1-246-473-11	1k
R701	1-246-533-11	330k
R702	1-246-449-11	100
R703	1-246-409-11	2.2
R704	1-246-448-11	91
R705, 706	1-246-471-11	820
R707	1-246-401-11	1
VR701	1-226-124-11	10k, variable; OFF/VOL

MISCELLANEOUS

ANT	1-501-173-21	Telescopic Antenna
CFU401	1-403-163-00	AM IFT
S401	1-552-248-11	Switch, slide; band selector
SP701	1-502-401-00	Speaker
	1-507-527-00	Jack, EARPHONE

ACCESSORIES & PACKING MATERIALS

1-504-044-00	Earphone, ME-21
3-701-621-00	Bag, plastic
3-983-898-11	Carton
3-983-899-51	Manual, instruction

HARDWARE NOMENCLATURE

Screw:

P 3 x 10

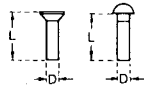
L: Length in mm

D: Diameter in mm

Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft

Reference designation

Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

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